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A DAY'S BEATING.

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The rosy dawn of this early June morning has been followed by dull gray, clouds which, slowly massing across the sky, presage rain for the afternoon. A good day for the beating umbrella both for catching beetles and for shelter on the way home.

My preparations for a day in the woods are generally made the evening before, or I am sure to forget something in the hurried morning start. A large, wide-mouthed bottle for the bulk of the catch and several small vials for the minute things or paired specimens that should be kept separate, filled with alcohol (denatured is just as good for the purpose), are deposited in pockets convenient for instant use. A small cyanide bottle for specimens whose colour will not stand alcohol, and a large cyanide jar for Lepidoptera or other insects interesting to brother collectors, are placed in side pockets or in the corduroy bag that is slung over my shoulder. This bag contains: a large knife, a trowel, a drinking cup, a fine wire strainer of five inches diameter for dipping up water beetles, an old pair of gloves to protect the fingers when much collecting is done under stones, two or three tin boxes to which I transfer Lepidoptera and Hymenoptera as soon as they are dead (to prevent rubbing), a white cloth with loops at each corner to hold two diagonally crossed sticks which will keep the cloth spread so that it can be used in place of the umbrella if that instrument collapses (as often happens) at the most interesting point of the capture. I also have a net that fits into the bag, made of brass wire leaded into a brass union, which in turn is screwed into a brass increaser; into the larger end of this a stick can be screwed and fastened by a tack through a hole drilled in the rim of the increaser. Nets of several sizes or kinds can be carried along, and at once interchanged by merely screwing them into the increaser. Last but not least I make sure that my forceps are in the sheath that is pinned on the inside of my coat at the most convenient height for hurried seizing.

Thus equipped I hasten down the side streets to the railroad tracks that lead to Sherborn town. Half a mile brings me to an interesting swamp beside the track and, although within a stone's throw of a busy foundry, I am seldom able to get past it without investigating its possibilities. In this swamp all the wood has now been cut off but a few old willows, and the dead and dying bushes and young trees often yield some very good things. It is here that I take *Pogonocherus salicicola* Casey, and the species was determined for me by its describer from specimens that emerged from dead twigs collected from these willows.

Splashing through the ankle-deep brown water I cannot resist an attempt

to get something from the bunches of live willow sprouts that have escaped the grass fires. The attempt always brings a multitude of *Crepidodera helxines* L., or a shower of brown-tail moth caterpillars into the umbrella, and to-day is not the exception. I have occasionally found a few *Rhynchites cyanellus* Lec. among the usual vermin.

My beating stick is any handy dead limb of suitable length, and it can easily be replaced. The blows on the scraggly old dead willows shower down bits of bark and moss with an occasional *Allandrus bifasciatus* Lec., *Acopiis suturalis* Lec., or *Chramesus icoriae* Lec. From the smaller trees I get a score of *Laemophlaeus adustus* Lec. and *convexus* Lec., an occasional *biguttatus* Say or *fasciatus* Mel., *Psenocerus supernotatus* Say, *Orchesia castanea* Melsh., and still more rarely *Pogonocherus salicicola*, *Lepturges querci* Fitch and *facetus* Say. Across the track the alders and fire-killed bushes yield numbers of *Laemophlaeus* and *Molamba* which are barely discernible as minute dots crawling on the dark umbrella. Some of the Cerambycids remain perfectly still on the cloth, and are occasionally picked from the very edge where the least motion would tumble them to safety.

New fields lure me on down the track half a mile more to the woods and meadows, but I must always stop to take a whack at the clump of poison sumac growing by the fence on the edge of the swamp that stretches away to the brook beyond the higher ground. It yields as usual only *Psenocerus supernotatus*, and the chokecherry and red maple are even less productive, although I have taken some good things from the sprouts of the latter, notably *Purpuricenus humeralis* Fab., *Limoniis aurifer* Lec. (in Maine), and *Corymbites nigricornis* Panz. (typical *nitidulus* Lec.) once in numbers.

Near the track fire has killed all the large trees of the high ground, and it has grown up with bunches of blueberry, amelanchier and sweet fern. The former yields nothing at all generally, but the amelanchier I have now visited at the most favourable time, and when I have finished with them I have several specimens of the rare *Agrilus vittaticollis* Rand. and a set of *Saperda candida* Fab. The latter I have never taken otherwise, except once only, when I suddenly saw one balanced on the tip of a dead sprout almost between my legs.

Travelling east again down a wood-road, I visit a few white pines that have escaped the fires. The lower branches of these I am able to reach with a long limb, and almost the first blow brings down a beautiful green beetle, *Chrysobothris harrisi* Hentz, a very welcome find. I attack the trees with renewed vigour when a sharp sting in the vicinity of my collar bone causes me to suspend operations with visions of a ferocious, white-faced hornet probing about my jugular vein. Hastily throwing off my coat and bag I frantically try to dislodge the intruder by tearing open my shirt and getting head down over the umbrella, for entomological curiosity compels me to search out the identity of the insect that has violated the sanctity of my person. At intervals during these manoeuvres, when the clothing binds the insect, it deliberately, but with unexpected moderation, punctures my skin, selecting five different places before it is released and falls to the umbrella; it is a yellow hymenopter whose identity is unknown to me. After arraigning the intruder in appropriate, if not ethical, language the search for *C. harrisi* is continued with one more specimen as a reward. In Maine *Corymbites medianus* Germ., and *propola*

Lec., and *Harmonia picta* Rand. are common fruit of the white pine, but not here. I have taken *Rhinomacer elongatus* Lec. in numbers and *Dinoderus substriatus* Payk. sparingly by beating cut pine tops when the needles were dead enough to fall.

From these trees I wander through the red maple saplings, speckled alder and blueberry bushes to the edge of the meadow with its gently-waving grasses and tangled cranberry vines. I recline at ease on the soft grass on the bank of a slowly flowing brook, and watch the crows silently flying to and from their nests that I know are hidden in the woods beyond. *Dineutes* and *Gyrinus* are whirling and spinning on the water at my feet. The tiger beetles, *C. repanda* Dej., are hunting on the patches of white sand of the further bank. To the right is a grove of waving pines, the green of their needles contrasting pleasingly with the darkness of their trunks; in front of me are tall chestnuts and oaks; to the left of the green meadow is traversed by the brook that disappears in a sudden bend behind the oaks and chestnuts. Many happy hours have I spent beside this brook, and again I recall the day I swept *Leptura deleta* Lec. from the *Spiraea* blossoms almost within the shade of the murmuring pines; the time I almost got *Leptura subhamata* Rand. on the same flower, and the plant which bore it is now within my sight. How I pawed around in the dead grass on hands and knees on the soggy meadow bottom for a full hour after the elusive specimen, and with what regrets I finally gave up the quest. And so each spot recalls some entomological event that is again enacted as I dream beside the winding stream. A spotted turtle goes pawing his course down along the bottom of the brook and reminds me that I must be on the move, for it is nearing noon, and although the rain still holds off it will not spare me much longer.

I must try the grove of young pines half a mile further on for I have found that pines and other evergreens along the edges of a wood are the hiding places of many beetles in cloudy weather, and even in sunny weather after 4 p.m. or before 10 a.m. I have also had wonderful luck sweeping *Alnus incana* bushes in Maine at sunset, taking many rare things in numbers, such as *Elatér sanguinipennis* Say, and *semicinctus* Rand., *Cardiophorus convexulus* Lec., *Melanotus leonardi* Lec., *Corymbites hamatus* Say, *Lyctus striatus* Melsh., and *opaculus* Lec., *Saperda obliqua* Say, and *lateralis* Fab., *Oberea pallida* Casey, *Agrius pensus* Horn and many other lesser lights. By beating *Alnus* sprouts when the sun was shining in the afternoon I once took many *Dicerca caudata* Lec., *Eupristocerus cogitans* Web., and *Oberea pallida* in Maine. In Massachusetts I have had no such good luck with *Alnus*, and can only record *Anomala lucicola* Fab. *Harmonia similis* Rand. and *Adalia frigida* Schn., all of which are rather uncommon in this locality.

Down the brook, ignoring the fine sweeping grounds on either side, I hasten on towards the rocky hill fringed with scattered pitch pines and topped with small oaks, hickories and well-browsed hazel bushes. On the south slope is an open grove of young white pines that should well repay a visit. The first tree gives me a regular shower of *Dichelonycha albicollis* Burm. and *Glyptoscélis pubescens* Fab., both of which are well-known products. A thorough canvass of the trees yields nothing else, but a barberry bush in flower drops an *Elatér collaris* Say into my umbrella to lighten the disappointment.

I try the hickories, which on sunny days may have some *Anthaxia quercata* Fab. (and later, in July, *Dicerca lurida* Fab.), *Saperda lateralis* Fab. or *Tymnes tricolor* Fab., but nothing appears except *Sinoxylon bidentatum* Horn from the dead twigs. The hazel bushes are also non-productive to-day except for *Chlamys plicata* Fab., which can be swept by dozens from sweet fern at times, and a few *Attelabus rhois* Boh. If the sun were shining I should expect *Agrilus otiosus* Say in numbers, *arcuatus* Say (variety *coryli*) and *politus* Say, which so resemble each other in colour as to be indistinguishable without a lens, *Calligrapha rhoda* Knab, and possibly a few *Agrilus defecius* Lec. and *cephalicus* Lec.

The pitch pine (*Pinus rigida*) gives up a few *Melanotus*, one *Corymbites triundulatus* Rand. and one *Harmonia picta* Rand., which are both rare here. At sunset I have had fine success with a few of these trees at the top of a small hill, taking *Chrysobothris floricola* Gory, *Enoclerus nigrifrons* Say, *Ernobius luteipennis* Lec., *Pogonocherus mixtus* Hald., *Eupogonius tomentosus* Hald., *Corymbites splendens* Ziegl., and *propola* Lec. At another time I found the twigs swarming with *Anomala oblivia* Horn.

The scattered cedars (savins) of the pasture here have never yet paid me for the time spent on them, and I might say the same of live elm (unless one is looking for the elm leaf-beetle), ash, apple, chestnut and, in Maine, the spruce and fir, although I see no reason why the two latter should not make as good hiding places as the pines and hemlocks. It is very probable that the time and place entirely govern success in beating, and while I always give them a stroke or two, elm, apple and cedar are absolutely hopeless to me. The oaks are the most prolific as a whole, but must be visited on sunny days, preferably along towards 5 p.m., as the insects are then less active and can be secured without the losses that are sure to occur by quick flight during the heat of the early afternoon. Among the more interesting things from oaks are: *Chrysobothris azurea* Lec. (dead white oak), *Agrilus masculinus* Horn, *acutipennis* Mann., *auricomus* Frost (red oak), *crinicornis* Horn (raspberry leaves in Maine), *Elytroleptus floridanus* Lec., *Bassaricus mammifer* Newm., *Rhynchites aeneus* Boh., *Auletes ater* Lec., *Pterocolus ovatus* Fab., and several species of *Balaninus*.

The rain is now gently falling in fine scattered drops as I stop by the brook to try the young poplars and alders growing thick over a small area near the railroad. The former gives me one *Cotalpa lanigera* Linn., and plenty of *Phylloocta vitellina* Linn. At other times I have taken an occasional *Agrilus anxius* Gory, and *Saperda concolor* Lec. with *Zeugophora puberula* Cr. turning up in large numbers twice from poplar. From the alders I now get a single *Dicerca pugionata* Germ., which rounds out a perfect day as I have now taken my second specimen of this fine species. *D. caudata* Lec. is rarely seen resting on the side of the stems of the young alders, from whence it may, sometimes, be knocked into the net or umbrella.

Back along the brook I hasten while the rain increases in intensity with every intermittent shower. I tarry a few moments in the heavy growth of oaks and chestnuts through which the rain has not yet penetrated. Here I bring down *Melanotus castanipes* Payk., two species of *Platydemia*, *Phloeerya liturata* Lec., and *Agriotes oblongicollis* Melsh. in numbers by vigorous kicks against the dead saplings. I once brought down a shower of *Bostrychus armiger* Lec. from a dead white oak sapling by this method; it was in a thick wood

and none of the other oaks near by gave me a single specimen, and I have never happened on them again. In Maine I have beaten the rare *Enchodes sericea* Hald., *Microbregma emarginatum* Duft., *Oligomerus obtusus* Lec. and *Elater apicatus* Say from the dead lower limbs of large sugar maples.

A final kick at a dead stub brings down the whole top smashing into the umbrella with disastrous results and, casting away the now utterly useless implement, I plod along in the pouring rain over the railroad ties towards home. When I arrive there I am soaking wet but happy in the memories of the day's experiences, and each time I open my boxes these memories will be reflected from the shining armor of *Dicerca pugionata* and *Chrysobothris harrisi*.

NOTES ON COCCIDÆ. V. (HEMIPTERA).

BY G. F. FERRIS,
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(Continued from Can. Ent., Vol. 51, p 253.)

Genus PROTODIASPIS Ckll.

The original description of this genus was not sufficiently detailed, and much doubt has existed as to its exact nature. Through the kindness of Professor Cockerell I have been enabled to examine a slide mount of *P. parvula* Ckll., the type of the genus, and find it possible to extend somewhat our knowledge of this and related species.

The original description of the genus was as follows: "A genus of Diaspinæ secreting no scale but the females enveloped in cottony secretion, the male pupæ resembling those of Diaspis, but extremely short. No grouped circumgenital glands." To this genus there have previously been referred, (with some doubt) *Protodiaspis anomala* Green, *P. tridentata* Ferris, *P. edentata* Ferris, *P. agrifolia* Essig and *Fiorinia syncaripæ* Maskell. Of these only *P. agrifolia* Essig can be considered as congeneric with the type, and I am here naming a new genus for the others.

I am unable at present to offer any very precise definition of the genus *Protodiaspis*, partly because of certain possible errors in the original description that I am not able to clear up, partially because of the need of more information concerning the immature stages and partially because of the hazy limits of certain other genera. I present, however, the following characterization, this being based upon *P. parvula*, *P. agrifolia* and two other species that I am here describing as new.

Coccidæ referable to the subfamily Diaspinæ, secreting a distinct scale or possibly in some cases merely loose secretion; the scale of the female circular with the exuviae central, that of the male elongate with the exuvia at one end, in both sexes white; second exuvia of female large but not at all, or at the most only partially, enclosing the adult; tubular ducts (Fig. 1B) of the type seen in *Diaspis* and related genera, all small, those of the pygidium scattered; pygidium usually weakly or not at all chitinized; circumgenital pores present or absent; lobes of the pygidium present or absent. Small species (about .5 mm. long) as far as known infesting only oaks.

Protodiaspis parvula Ckll.

1898.—*Protodiaspis parvula* Ckll., Ann. Mag. Nat. Hist., (7), 1:428.

Material Examined.—Slide mount from the type material, from oak, Mexico.

Notes.—The material examined is not in sufficiently good condition to permit the making of figures or of adding much to the original description. I may note, however, that the insect is apparently very similar to *P. agrifoliae* Essig, differing chiefly in the absence of circumgenital pores. The dorsum of the pygidium possesses numerous small ducts, as in the latter species. I am unable to detect any lobes. The species is so very similar to *agrifoliae* that I cannot regard the two as anything but congeneric. As *P. agrifoliae* has a distinct scale, it appears quite possible that the original description of *parvula* is in error in the statement that this species has no distinct scale.

Protodiaspis agrifoliae Essig.

Fig. 7.

1914.—*Protodiaspis agrifoliae* Essig, Journal Ent. and Zool., 6:75–80, figs.

Habit.—Scale of the female white, circular, quite high convex; male, according to the original description, "The exuviae of the males are yellow, and their position is somewhat distinct from the posterior end. The scales are little more than fluffy, snow-white cocoons, made of fine white cottony material. . ."

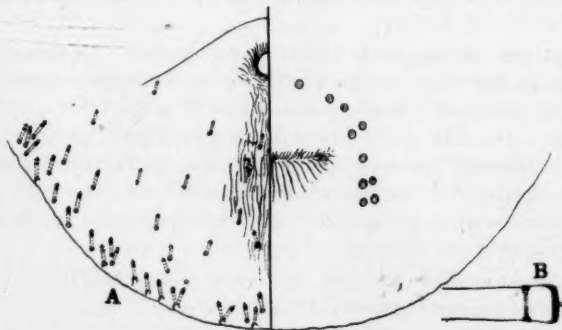


Fig. 7.—*Protodiaspis agrifoliae* Essig. A, pygidium; B, type of duct.

Adult Female.—Length .5 mm., form oval. Derm everywhere membranous except for the anal ring, and a faintly chitinized area immediately about and caudal of the anal orifice. Dorsum of the pygidium (Fig. 1A) with numerous small tubular ducts, and the margin of the body with a continuous narrow zone of such ducts. Circumgenital pores present, arranged in an almost continuous arch of 20–30 pores. There appear to be no gland spines at any point on the body.

Second Stage.—Figured by Essig as possessing small lobes, but in a mount of the exuvia at hand it appears not to differ from the adult.

Notes.—Structurally this appears to be so close to *P. parvula* that there can be but little doubt that the two are strictly congeneric, in spite of the statement that the former species possesses no definite scale.

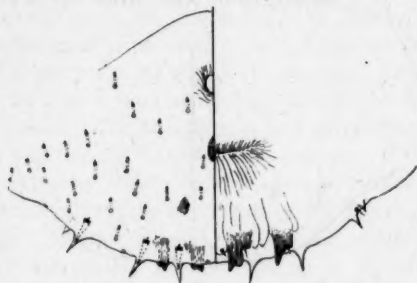
Protodiaspis lobata, n. sp.

Fig. 8.

Type, Host and Locality.—Taken from an herbarium specimen of *Quercus gambelii*, from four miles east of Santa Fè, New Mexico.

Habit.—Scale of the female as in *P. agrifoliae*, that of the male elongate, slender, white and non-carinate.

Adult Female.—Length .4 mm., form broadly oval. Derm everywhere membranous, except for a very small area immediately about the anal ring, one or two irregular, very small areas on the dorsum of the pygidium and the lobes. Dorsum of the pygidium with numerous scattered ducts and the margin of the body likewise with a continuous zone of such ducts. Margin of the body also with a practically continuous row of small gland spines. Pygidium with two pairs of small, irregularly-shaped lobes and with two or three

Fig. 8.—*Protodiaspis lobata*, n.sp. Pygidium.

pairs of small gland spines. Circumgenital pores lacking.

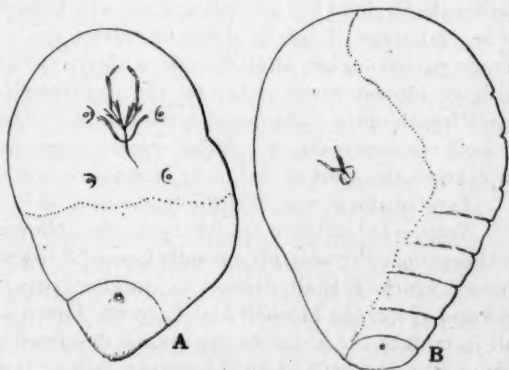
Protodiaspis pulchra, n. sp.

Figs. 9, 10 and 11.

Type Host and Locality.—From herbarium specimen of *Quercus toumeyi*, from Pedestal Rock, Chiricahua Mts., Ariz.

Habit.—Scale of the female as in *P. agrifoliae*; scale of the male not seen.

Adult Female—Length .5 mm.; form slightly elongate oval or somewhat irregular (Fig. 9A); cephalothorax and pygidium tending to be quite heavily chitinized. Pygidium (Fig. 10) somewhat acuminate, the tip narrowly rounded. Two pairs of lobes present, the inner pair quite close together and widely separated from the outer pair. Outer lobes composed of two lobules, of which the outer is the smaller. Dorsum of the pygidium with numerous scattered and very small ducts. Anal opening closer to the anterior margin of the pygidium than to the posterior, and slightly cephalad of the vaginal opening. Margin of the body with a continuous zone of small ducts, but without gland spines.

Fig 9.—*Protodiaspis pulchra*, n.sp. A, adult female; B, exuvia of second stage.

Second Stage.—Only exuviae are available for examination. In these one side is much more heavily chitinized than the other (Fig. 9B). The pygidium (Fig. 11) is short, broad and almost truncate. There are apparently two pairs of very small lobes and the dorsum bears a few very small ducts.

Notes.—This differs rather widely from the other species

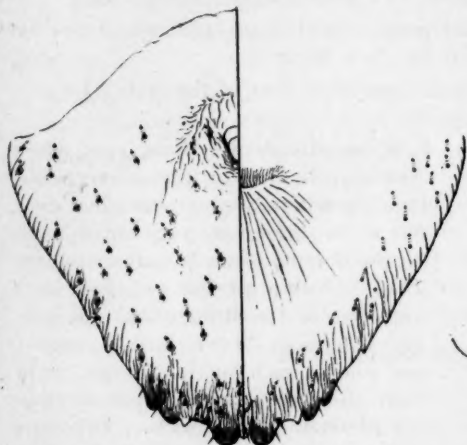


Fig. 10.—*Protodiaspis lobata*, n.sp. Pygidium of adult female.



Fig. 11.—*Protodiaspis pulchra*, n.sp. Pygidium of second stage from exuvia.

of the genus, so much so as to complicate the definition of the group, but it may be referred here for the present, at least.

Genus ANCEPASPIS, new genus.

Coccidæ referable to the subfamily Diaspinæ but in which neither the male nor the female secretes a scale, the adult of both sexes being included within the derm of the preceding stage which becomes heavily chitinized; exuvia of second stage of female dehiscing about the posterior margin to permit the escape of the larvæ; adult female without circumgenital pores, and all stages without tubular ducts either on the pygidium or elsewhere; pygidium of the adult female with the margin more complex than that of the second stage, or at least not less complex. Small species (adult less than 1 mm. long) occurring on hosts of the families *Fabaceæ*, *Mimosaceæ* and *Cassiaceæ*.

Type of the genus, *Protodiaspis tridentata* Ferris¹.

Notes.—In addition to the type, the following may definitely be referred to this genus; *Protodiaspis anomala* Green, *P. edentata* Green and an undescribed species which I shall discuss in another paper. Green has suggested that *Fiorinia syncarpia* Maskell and *F. secreta* Green are congeneric with this group, but in both of these species the male is described as having a secretory scale. I have seen the male of an *Ancepaspis* only in connection with the undescribed species mentioned above, but this species is so clearly congeneric with at least *tridentata* and *edentata* that there can be no question as to the relationship of these forms.

This is a most peculiar group, having but little resemblance to the ordinary Diaspine types. It is probably not related to such genera as *Fiorinia* and *Leucaspis*, in which tubular ducts are present at least in the nymph.

1. *Protodiaspis tridentata* Ferris, Contrib. Knowl. Coccidæ Sw. U. S., p. 46, fig. 22. In Stanford University Publications, University Series, 1919.

THE GENERIC POSITION OF SPHINX SEPARATUS NEUM.

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On Aug. 23, 1918, a strange sphingid larva was found in a tomato patch at 905 Lincoln Avenue, Boulder, Colorado. It was about 110 mm. long, with a diameter of 16 mm.; head black, with a dark red stripe on each side; general colour of body creamy-white, with black and dilute black markings, the under side plumbeous. The caudal horn was small and black. The most conspicuous markings were on the dorsum of thorax, and were large and intense black; consisting of a trilobed or trefoil-like mark behind the head, with a short stem to the anterior margin of the segment, and a much larger broad, elongate mark on the hinder part of thorax, the interval between these markings having a pink suffusion. The thorax also had three round black spots on each side. Beyond the thorax, the dorsum was ornamented by transverse rows of small spots, and laterally by short, oblique, black marks, directed dorso-cephalad, i. e., in an opposite direction from that of the lateral stripes of *Sphinx*. From the caudal horn, however, a short, black band passed anteriorly on each side, homologous with a similarly placed marking in *Sphinx*. In the middle of the body, also, the oblique stripes of *Sphinx* were more or less distinctly developed, as rather short, dark bars, dorsally. A more or less distinct + -shaped mark was behind the larger thoracic patch, and a similar one anterior to the caudal horn.

This peculiar larva, very unlike that of *Sphinx*, produced a pupa in which the maxillary loop is about 22.5 mm. long, not allowing for the curvature, and strongly arched from the surface of the body (distant from it at one point as much as 5 mm.), with the end bulbous. The metathoracic ridge, about 6.5 mm. long, is only very narrowly interrupted in middle, the interval less than half a mm. Dorsally, the abdominal segments are strongly punctate anteriorly. The spiracular furrows are deep and about 4 mm. long, not extending ventrad of the spiracle; excepting, however, the posterior furrow of the first pair, which is longer, and goes ventrad of the spiracle by a distance almost equal to the length of the latter. Pupa is about 53 mm. long; colour dark chestnut red.

Judging from the pupa, and following the characters so admirably presented by Dr. Edna Mosher, this insect should have been a *Protoparce*. The moth, however, is *Sphinx separatus* Neum.! This species does not seem to me to be a true or typical *Sphinx*. The antennæ are curved at the end, approaching the condition of *Protoparce*, and the markings of thorax and anterior wings are very *Protoparce*-like. The black and white lateral banding of the abdomen, and the heavy (coalesced) bands on the hind wings are striking specific characters. On the under side the resemblance to *Protoparce sexta* is quite close. The eyes, in *Sphinx*-fashion, have very long lashes, but *P. sexta* has evident though much shorter ones. Mr. B. Preston Clark, working with the adult insects, kindly tells me that he cannot find adequate grounds for subdividing *Sphinx*, of which he has before him all the known species but two. Nevertheless, in view of the peculiar larva, and especially the characters of the pupa, far more striking than those used to separate the moths of the two genera in question, it seems necessary to regard *S. separatus* as the type of a distinct subgenus or possibly genus. For this I will propose the name *Mesosphinx*.

We have found two species of more typical *Sphinx* at Boulder; *S. drupiferarum* Abb.-Sm., collected by William Winner, and *S. vancouverensis* Hy. Edw., collected by Rosamond Patton.

A PARASITE OF DERMESTID BEETLES IN ENTOMOLOGICAL COLLECTIONS.

BY T. D. A. COCKERELL, UNIVERSITY OF COLORADO, BOULDER.

In the fall of 1914 a specimen of *Libellula pulchella* was caught at Forest Hills, Mass., and came into the possession of Mr. J. T. Scott, then a student at the Bussey Institution. It was placed in a box which was taken to Lynchburg, Virginia, and there remained 2½ years. For at least a year past it was known that the specimens were infested by anthrenids. About Sept. 5, 1918, the box was received by Mr. Scott at Boulder, Colorado; and on Sept. 15 several small hymenopterous insects were found alive in it. On investigation, Mr. Scott found small, pure white cocoons on the *Libellula*, two upon the wings and two inside the thorax. Anthrenid larvæ were also found, showing evidence of parasitism. There was one Anthrenid larva still alive.

On examination, it was easily determined that the insects were Bethyids of the genus *Laelius* Ashmead. This genus is well known to be parasitic on Dermestid larvæ, and consists of the following species, as far as yet known:

1. U. S. species. *L. trogodematis* Ashm., *L. tricarinatus* Ashm., *L. rufipes* Ashm., *L. nigripilosus* Ashm., *L. fumipennis* Brues.
2. French species, *L. bipartitus* Kieff., *L. tibialis* Kieff., *L. perrisi* Kieff.
3. Italian species, *L. fulvipes* Kieff., *L. anthrenivorus* Trani.

Mr. Scott's insect, which undoubtedly attacked the anthrenids in Virginia, is easily separated from all those of America by the clouded wings and dark legs with red anterior tibiae. It may be described as follows:

Laelius utilis, n. sp.

Female.—Length fully 3 mm., anterior wing 1,850 microns; black, highly polished, the surface of head and thorax microscopically tessellate, the front with very sparse but large piliferous punctures; wings clouded beyond the middle; nervures dilute fuscous; legs superficially appearing black with bright ferruginous anterior tibiae, but the other tibiae and all the tarsi are obscure dark reddish; the legs have sparse, long, black bristles, the tarsi with short, black hair. The abruptly truncate metathorax has the dorsal surface very beautifully ornamented, with fine longitudinal plicæ, three in the median region, and one near each side; there are also shorter plicæ between these, arising from the base; between the median and subdorsal plicæ the surface is minutely cancellate, and beyond the subdorsal plicæ it is very finely transversely striate; the plicæ, except the median one, border a series of large, shallow pits. The apical truncation of metathorax is minutely cancellate, with a delicate median raised line. Mandibles, base of antennæ and trochanters reddish, but palpi dark. Third and fourth abdominal segments minutely transversely lineolate on basal half.

The type will be placed in U. S. National Museum.

February, 1920

NOTES ON SOME SYRPHIDÆ (DIPTERA) COLLECTED IN ENGLAND AND FRANCE DURING 1917-18.

C. HOWARD CURRAN,
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While on military service in Europe a few opportunities for the collection of insects occurred. Such opportunities were not anticipated, and as a result, all the insects taken were captured in the hand, a not very satisfactory, and certainly a very disappointing method in so far as the collector is concerned. However, some thirty-six species of Syrphidæ have been determined, and it is interesting to note that several of these are considered by Verrall (British Flies, Vol. VIII) to be rather scarce in England.

Unfortunately the specimens collected in France, with the exception of a very few, were lost, due to unforeseen circumstances. They were packed away in cotton wool in a tobacco tin, and when my kit arrived from France it was found that all tobacco, including all tins, had been confiscated by my brother officers. Evidently some smoker received a huge surprise.

Naturally, conditions in Europe and America are vastly different as regards collecting. Kent and Sussex, England, I found to be ideal collecting grounds, and many "perfect" localities were found. About twenty acres of flowering shrubs and flowers, dotted with ponds and surrounded by woods, at Horsham, Sussex, furnished most of the specimens collected. At Cuckfield, (near Hayward's Heath), a slashing, with young willows in bloom, was to be found in Diptera. At Hythe, an open woods (out of bounds), in which many flowers were growing proved to be a good place for Syrphids. Less favourable localities were found in other parts of England and Ireland; no collecting was done in Scotland, although observations were made.

In France all the collecting was done about a mile from the coast, near Estaples, in an old shrubbery and a strip of wood adjoining a marsh. Many flies, especially belonging to the Syrphini, were observed on the edges of the trenches, even where gas was used freely. *Syrphus balleatus* was one of these.

General observations seemed to indicate a larger number of common species and a greater abundance of insect life in general.

Two of the genera collected do not occur in North America, and both are very interesting connecting forms. These are marked with a†. Those marked with an asterisk occur in Canada.

Microdon sp. I note a single specimen taken at Le Touquette, France, in June, 1918, because the specimens belonging to the genus are not at all common. It was taken on currant leaves in a narrow strip of woods.

Pipizella virens Fabr. Two females, Horsham, Sussex, early June, on leaves of low-growing plants.

Chilosia illustrata Harris. A single male taken at Cuckfield, Sussex, late May, in a slashing with young willows growing. The flies were fairly common, sunning on dried leaves on the ground.

Chilosia albipila Meig. Four specimens taken in the same place as the preceding, and also on willow blossoms

**Chilosia variabilis* Panzer. Two females taken at Horsham, Sussex, early June, 1918, sunning on leaves.

Chilosia pulchripes Loew. Male, Hythe, Kent, Aug., 1917, on flowers in wood.

Chilosia vernalis Fallen. Male, Cuckfield, April, 1918, willow slashing.

Melanostoma melinum Linn. Two females from Horsham, early June, 1918, sunning on leaves.

Melanostoma scalare Fabr. Three females, two from Horsham, early June, 1918, one Hythe, Aug., 1917.

**Platychirus peltatus* Meigen. Male and female, Horsham, early June, sunning on leaves.

Platychirus albimanus Fabr. Male, Hythe, Aug., 1917; female, Horsham, June, 1918, male; Cuckfield, April, 1918; the first on flowers, the last two on leaves.

Platychirus manicatus Meigen. Female, Horsham, early June, 1918, sunning on leaves.

†*Xanthandrus comutus* Harris. Male, Hythe, on bloom in open woods, Aug., 1917. This genus is not represented in North America, and the species, which is not common, is its only representative. It is related to *Syrphus* and *Melanostoma*.

**Scaeva pyrastris* Linn. Male, Hythe, Kent, Aug., 1917, on bloom in open woods.

**Syrphus ribesii* Linn. Female, Horsham, June; male, Kilkenny, Ireland, Oct., 1918. This species is not nearly so common as in America.

**Syrphus cinctellus* Zett. Male and female, Horsham, early June, 1918. Possibly occurs in N. America, but not very common in England. Specimens taken in flower garden, on bloom.

Syrphus luniger Meigen. Female, Horsham, June, 1918, on bloom in garden. Belongs to the *arcuata* group.

Syrphus balteatus DeGeer. Seven males and females from Hythe, Kent, in open woods. I also observed specimens in various other places, in England, Ireland, Scotland and France. It appeared to be the most common species of the genus, and was especially abundant near streams and damp places, as well as on bloom.

Sphaerophoria menthastri var. *picta* Linn. Horsham, a single female, taken on bloom in early June. I have also a specimen taken from the class collection at the Ontario Agricultural College, 1913. I doubt if the specimen was taken in Canada.

Sphaerophoria scripta Linn. Two males and a female, from Mr. J. E. Collin, London. Unfortunately a large series of this species was not obtained. From a comparison with *S. cylindrica*, I do not think that it is the same species.

Ascia podagrica Fabr. Male and female from Newmarket, Eng., April 4, 1918, taken on leaves of ground plants, sunning. A very small species, and extremely difficult to catch without a net.

Baccha elongata Fabr. A single male, Kilkenny, Ireland, Oct., 1918. I observed this species also at Horsham and found it to be very numerous in France, in rather long grass on the edge of a marsh. I took twelve specimens in half an hour.

Rhingia campestris Meigen. Six males and females, Horsham, early June,

on bloom in deep woods. The species is much like *R. nasica*, Say, but more reddish, and the thorax is darker in both sexes.

Volucella inflata Fabr. Female Horsham, Sussex, early June, in flower garden. Fairly common. I also had specimens from France.

**Volucella bombylans* Linn. Var. *bombylans*, male, and female Horsham, early June, and specimens taken in France. Var. *plumata* six males and females Sussex. This species is very common, especially the latter variety, which corresponds exactly to our *V. facialis* Will. Our *V. evecta* should be considered a variety of *V. bombylans*.

**Eristalis tenax* Linn. A female from Hythe and a male from Kilkenny. I found the species to be common everywhere.

Eristalis pertinax Linn. Eight males and females from Hythe and Sussex. The species is common on bloom and sunning on leaves. It resembles *E. tenax*, but is more slender and more pilose.

**Eristalis nemorum* Linn. Two males Horsham, Sussex, early June. This species, which has recently been recorded from the Maritime Provinces, is common in England. Specimens were taken sunning on leaves, and observed about the edge of a pond.

**Eristalis arbusorum* Linn. A single male from Horsham, early June, 1918. This species is very common in Canada. Williston describes it as *E. broussii*, and it is confused with *E. meigenii*. In England and France I found it to be quite common, but neglected to take specimens.

Helophilus pendulus Linn. Two females from Horsham, early June, on leaves and bloom, and a third specimen, evidently different, from Ireland. I took a large number of specimens of this genus in France, evidently belonging to two or three species.

**Merodon equestris* Fabr. Ten males and females belonging to four varieties: *equestris*, *narcissi*, *vallidis*, and *transversalis*. This injurious species was very common in Sussex, about bloom in gardens. The larvæ bore into healthy bulbs. I recently examined an importation of narcissi, 10% of which were infested.

Criorhina berberina Fabr. Female, Cuckfield, late May, 1918, in willow slashing. It is much like *C. tricolor* of the West Coast, in colour, but structurally different. It is not common.

Criorhina ranunculi Panz. Female, from willow bloom, late May, 1918, Cuckfield. "The most handsome British Syrphid" Verrall. Not at all common; a large, long, black, pilose species, with lighter pile on the scutellum and end of the abdomen.

**Xylosta segnis* Linn. Four males and females from Hythe and Horsham. A common species. I observed it on hawthorn and other bloom in various parts of England.

**Syrphia pipiens* Linn. A single specimen from Sussex. Equally as common in England and France as in America.

†*Myiatropia florea* Linn. Female, Horsham, early June, 1918. This species, which is the only member of the genus, is fairly common in Britain. It is intermediate between *Eristalis* and *Helophilus*, but appears to be more closely related to the former. The eyes are narrowly contiguous in the male; pilose; marginal cell open. The fly resembles *E. transversus* in markings.

HYPERA NIGRIROSTRIS FAB. IN THE PACIFIC NORTHWEST.*

BY L. P. ROCKWOOD,

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Hypera (*Phytonomus*) *nigrirostris* Fab., is a clover insect of supposedly European origin¹ which, for many years, has been known to occur in the eastern states and eastern Canada. It has been recorded from as far west as Minnesota by Schwarz,² the most western point of which I have seen record, except as hereinafter stated. The insect is a very close relative of the Alfalfa Weevil, *Hypera postica*, and the discovery of its parasites in northwestern America is, therefore, thought worthy of record.

In 1916 Professor R. A. Cooley³ reported this weevil from "one valley in western Montana," where the insect had been present "during the past two years." In May, 1915, the author found adults of *H. nigrirostris* at Bellevue, Wash., on the shore of Lake Washington opposite Seattle. The distribution of this insect in the Pacific Northwest has since been traced by members of the staff of the Forest Grove Laboratory of the U. S. Bureau of Entomology, Cereal and Forage Insect Investigations as follows:—*H. nigrirostris* was found in western Montana by C. W. Creel at various points in the Flathead Valley from Columbia Falls on the Great Northern Railroad to Dixon on the Northern Pacific Railroad, and also at Arlee, Montana, in the Jocko Valley, a short distance south and east of the Flathead Valley. West of the Cascade Mountains it has been found from Vancouver, B.C., on the north (by C. W. Creel) southward through Washington to its southern limits in Oregon at Garden Home in the Willamette Valley, Forest Grove, in the Tualatin Valley and Nehalem on the coast. Mr. Wm. T. Ham, of the Truck Crop Insect Investigations of the U. S. Bureau of Entomology, reports it in correspondence from Orcas Island, Wash., and Longmire's Springs on Mt. Rainier at an elevation of 2,761 ft.

In 1915 and 1916 *H. nigrirostris* was found in fair numbers at Bellevue, Wash. and Olympia, Wash. In 1917 this species was very numerous and doing considerable damage to clover on the grounds of the Western Washington Experiment Station at Puyallup. In the season of 1918 *H. nigrirostris* was discovered for the first time at Forest Grove, Oregon. Only three specimens were found in that locality during the entire season of 1918. It does not seem possible that this insect could have been present at Forest Grove prior to this year, as clover fields of the vicinity had been very carefully watched since 1914. In the season of 1919 the weevils were slightly more plentiful at Forest Grove, but still by no means common. The insects increased in numbers toward the north, that is toward the Columbia River and the Coast Range, beyond which they also occurred on the ocean front near Nehalem, Oregon. Every indication is that the trend of dispersion of the species is from the north to the south.

There is, however, an unusual phenomenon concomitant to this invasion of a new region by a well-known insect. It was stated above that but three specimens of *H. nigrirostris* were found at Forest Grove in 1918. One of these

*Published by permission of the Secretary of Agriculture.

1. Webster, F. M., U. S. Bureau of Entomology, Bulletin 85, Part 1, 1909.

2. Schwarz, E. A., Proc. Ent. Soc. Wash., Vol. 9, 1908, p. 114.

3. Cooley, R. A., 14th Annual Rept. Sta. Entomologist Montana, Bull. No. 112, p. 67, 1916.

specimens was a typical *H. nigrirostris* cocoon containing an Hymenopterous cocoon of a kind indistinguishable from that of *Bathyplectes curculionis*, parasite of the Alfalfa Weevil introduced into Utah from Europe. Later this parasite was found in about 50 per cent. of the early cocoons of *H. nigrirosir*'s at Puyallup, Wash. In 1919 adults of this parasitic species were swept from clover at Forest Grove on two occasions. The parasite was also found to be present at Nehalem on the ocean front, where the weevil larvæ were not very easy to find. This parasite has been determined by Mr. A. B. Gahan⁴ of the U. S. National Museum as "*Bathyplectes exigua* Gravenhorst, a European species hitherto not recorded in the United States⁵ and apparently without host record in Europe." This parasite, like other members of this European genus, is especially adapted to prey upon the larvæ of Hypera, the young larvæ of which it searches out in their concealed locations in the axillary buds under the bracts on clover stems or under the flowering heads of clover. Thus we have a highly specialized parasite occurring even on the outskirts of the area infested by its host.

In addition this parasite of *H. nigrirostris* larvæ, a Pteromalid parasite attacking the pupæ within the lacy cocoons was found in fair numbers during the seasons of 1918 and 1919 at Puyallup, Wash., and Auburn, Wash. This parasite also shows a special adaptation for parasitism of Hypera, within the cocoons of which it occurs as naked larvæ or pupæ. However, it is not an active flier like *B. exigua*, and would probably spread more slowly than that species. It has not yet been found on the outskirts of the infested area. This parasite has been determined by Mr. A. B. Gahan as *Dibrachoides dynastes* Forster, a European parasite of the Alfalfa Weevil, *H. postica*, introduced into Utah but never recovered there so far as known to the author. This genus also, according to Mr. Gahan, was not represented in our fauna so far as known, previous to its discovery in Washington.

The occurrence in the Pacific Northwest of these parasites, apparently foreign to our fauna and not as yet found in the east, where *H. nigrirostris* has been known for many years and recently studied,⁶ suggests that the invasion of the Pacific Northwest may be from a source different from that of eastern America. It is unusual for highly specialized parasites of an introduced species to become common so soon after the appearance of the host in a new region. It has been shown that *H. nigrirosir* is spreading from the north to the south in the Pacific Northwest. This seems to indicate that the species is really circumpolar in its range, as Schwarz⁷ suggests, or that it has come from eastern Siberia by natural dissemination or accidental introduction. In the latter case the weevil was probably introduced by easy stages, such as would not eliminate the parasites, into the northern part of the Vancouverian faunal area of Van Dyke,⁸ which he considers includes even the lower levels of the Aleutian Islands and the southern margin of the Alaskan peninsula.

4. My thanks are due Mr. A. B. Gahan for determinations of parasites and kind permission to use extracts from his correspondence.

5. Mr. A. B. Gahan informs me that a specimen determined by him as *B. exigua* was recently reared from a larva of *Hypera punctata* at Mechanicsburg, Pa., by Mr. T. J. Guyton.

6. Herrick, Glenn W. and Detwiler, J. D. "Notes on some little-known pests of red clover," Jour. of Ec. Ent., Vol. 12, No. 2, 1919, p. 206.

7. Schwarz, E. A., Proc. Ent. Soc. Wash., Vol. 9, 1908, p. 114.

8. Van Dyke, Edwin C. Annals of the Ent. Soc. of America, Vol. 12, No. 1, 1919, p. 1.

NEW SPECIES OF SCYTHRIS (MICROLEPIDOPTERA).

BY ANNETTE F. BRAUN,
Cincinnati, Ohio.

Scythris graminivorella, n. sp.

Head and face dark brown with a faint brassy lustre. Palpi dark brown, slightly paler inwardly and at bases of segments. Antennæ simple. Thorax and fore wings clothed with elongate dark brown, faintly brassy scales, and streaked with paler scales which form several more or less distinctly defined spots. There is a small spot on the fold at the basal third, preceding and following which the fold is darker than the rest of the wing surface, due to absence of paler scales; at two-thirds a large, ill-defined spot extending from the dorsal cilia about two-thirds across the wing, and separated from a spot in the apex by a darker unstreaked patch. Hing wings darker than fore wings, purplish brown. Legs dark brown, brassy. Abdomen dark purplish brown above, whitish beneath. Expanse 10.5-12 mm.

Type.—♂, Cincinnati, O.

The type and eight paratypes were reared from larvæ on *Hystrix patula*. The mine is an elongate transparent blotch with the entrance beneath* guarded by a broad tube of silk; the larva usually makes several mines. Although the species seems to prefer *Hystrix* as a food plant, I have observed the mines on Canada blue grass, *Poa compressa*. Larvæ collected May 5, produced moths during the first half of June.

The specimen which Zeller mentions in a note following his description of *S. pilosella* is probably an example of this species.

S. graminivorella is most closely allied to *S. impositella*, but never shows the distinct markings of that species, nor the purplish tinge of thorax and fore wings. The indistinctly marked forms of *graminivorella* resemble the more yellowish forms of *eboracensis*, described by Clemens as *fuscicomella*. In this connection it may be worth while to note that I have bred the uniformly deep purplish black form as well as the yellowish form from larvæ in webs in tops of thistle. A large series of *eboracensis* from Louisiana are all of the dark form.

Scythris confinis, n. sp.

Face and palpi grayish; the palpi outwardly and at tips of segments dark brown. Crown, thorax and fore wings dark brown, slightly streaked with elongate golden brown scales, especially toward apex. A broad, golden brown stripe starts from near base and follows the fold, usually fading into the ground colour before reaching the margin. This stripe is bordered above and below with black, the black border especially on the upper side becoming broader near the wing margin. Hind wings and upper side of abdomen dark brown; abdomen beneath and legs paler, grayish. Expanse 10-12 mm.

Type.—♂ and 35 paratypes, Alameda County, California, May 22, 1908. (G. R. Pilate, collector).

S. confinis is of the same general type of marking as *S. perspicillella* Wlsm., but much darker and differently coloured.

*In *Hystrix*, the leaf blade is twisted near the base, so that the upper surface of the leaf faces downwards.

***Scythris interrupta*, n. sp.**

Palpi dark brown, white inwardly and above except at tips of segments. Head, thorax and fore wings dark brown faintly shining. A gradually broadening white streak follows the fold from base almost to middle of wing, where it often abruptly becomes two or three times as wide. At two-thirds there is a more or less distinct white, elongate spot on the fold. Hind wings with veins 4 and 5 coincident; dark brown, almost concolorous with the fore wings. Legs dark gray. Abdomen dark brown above, beneath gray in the male, silvery in the female. Expanse 10 mm.

Type (♂) and seven paratypes, City Creek Canyon, Highlands, California, May 11.

***Scythris ypsilon*, n. sp.**

Palpi pale yellowish shaded with fuscous beneath. Face pale yellowish. Top of head, thorax and fore wings pale golden. The fore wings are marked with three irregular, oblique white bands. The first of these crosses the extreme base to the dorsum, where it broadens greatly and passes obliquely upwards and outwards, joining the second band near the costa; the second band passes obliquely from the basal third of costa to near the middle of the dorsum, broadening below the fold. The third band extends from the costal two-thirds obliquely inwards to the dorsum, broadening on each side below the middle of the wing, and often enclosing on the dorsum a small spot of ground colour. Sometimes a minute white spot in the apex. Hind wings pale golden with a slight purplish tint. Abdomen pale golden above, anal tuft yellowish. Under side of abdomen and legs pale yellowish. Expanse 9.5-10 mm.

Type (♂) and eight paratypes, Loma Linda, California, June 30, July 11, August 21-31, and October 15. (G. R. Pilate).

Similar to *S. trivinctella* Zeller, but of a paler golden-ground colour and with greater extent of white markings.

ENTOMOLOGICAL BRANCH.**ENTOMOLOGIST FOR FOREST INSECT WORK IN BRITISH COLUMBIA APPOINTED.**

Mr. Ralph Hopping has been appointed as Entomologist to take charge of the forest insect work in British Columbia, under the direction of Dr. J. M. Swaine, Chief of the Division of Forest Insects, and he commenced duties in December. Mr. Hopping has had a lengthy practical experience of forestry operations and forest insect control work in western forests. He has been attached to the United States Forest Service for twelve years, and for seven years he had charge of insect control work in the National Forests in California. During the war his territory included the States of Arizona, New Mexico and Colorado. Few men have had a wider practical experience of forest insect control operations, and Mr. Hopping is now engaged in planning and supervising control operations for bark-beetle outbreaks in southern British Columbia, where these insects have been responsible for extensive losses in valuable timber during the last few years.

NOTES ON THE WINTER COLEOPTERA OF WESTERN AND SOUTHERN FLORIDA, WITH DESCRIPTIONS OF NEW SPECIES.

BY W. S. BLATCHLEY,
Indianapolis, Ind.

During the winter of 1918-1919 I collected from December 1 to February 11, and from March 6 to March 30, about Dunedin on the west coast of Florida.¹ In the interim, February 12 to March 5, I made a trip to Cape Sable and Key West, stopping four days on the way at Lakeland. A number of interesting and a few undescribed species of Coleoptera were taken during the season, and of these, except the Rhynchophora which will be treated elsewhere, the present article deals.

Cape Sable, the extreme southern point of the mainland of Florida, is an interesting place, but as yet a difficult one to reach. I went with a party of land-seekers and tourists from Lakeland to Homestead, via New Smyrna, Palm Beach and Miami by automobile, thus passing clear across the State from west to east and 250 miles down the east coast, a route necessary to avoid bad roads. From Homestead to Long Key, an island 30 miles southeast of Cape Sable, we took a train on the East Coast Railway. At Long Key we were met by a small boat of the Cape Sable Land Co., which makes a weekly trip for mail and supplies from the "Club House" of the Land Co. This club house is located about three miles from the point of the cape proper. In fact, there are three capes or points, the eastern and middle ones, about six miles apart, being occupied to within 50 yards of the water's edge by cocoanut groves which contain about 40,000 bearing trees.

The country about Cape Sable differs much from other parts of Florida, being for the most part a low, flat region devoid of pine, saw palmetto and sand, the three dominant features of the usual south Florida landscape. The soil, or rather the surface, is composed of comminuted limestone and, except along the brackish inlets and sloughs, supports only a prairie-like vegetation of weeds and grasses. The houses, few and widely scattered, are raised high above the ground to avoid the tides which, during hurricanes or violent storms, often cover the country for miles. There is no fresh water, rain water collected in large square surface concrete cisterns furnishing the supply for the settlers. Along the inlets and in the lower depressions are the so-called hammocks, composed of a dense growth of subtropical shrubs and trees among which Spanish bayonet, tall cacti and other thorn-bearing vegetation so abound that collecting has to be done mostly along the margins. A single phrase from my notebook, viz., "a few fair things and a million mosquitoes," was the average record of each day's collecting about the Cape at that season. Late in the afternoon or on sultry days a "million" would be a very low estimate of the mosquito population. Several times they drove me out of the hammocks onto the open prairie where there was a little air stirring but poor collecting.

The net result of my week's enforced stay was, on the whole, disappointing. Of Coleoptera only Rhynchophora were found in any numbers, but of them a

1. See Can. Ent., XLIX, 1917, 137.

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number were rare and interesting. I was glad when Thursday morn rolled round again and a start could be made for Key West. A new automobile road is being constructed from Homestead to Cape Sable, so that in a year or two the Cape can be more easily reached.

The island of Key West, where I spent five days, has been visited by many collectors and its insect fauna is well known. The conditions for collecting are, however, poor and growing worse. This is due to the lack of vegetation and fresh water—only a few stunted shrubs and trees remaining on the island. Here, as at Cape Sable, some of my most interesting captures were among the Rhynchophora. However, a Dytiscid, *Copelatus debilis* Sharp, new to this country,² was taken, and also a number of the species mentioned on the pages which follow. From Key West I returned to Tampa by steamer, and from there to Dunedin is a distance of only 27 miles.

Pasimachus strenuus Lec. On March 11 I found one of these large Carabids crawling backwards across a sandy roadway in Dunedin and dragging with him a specimen of the bulky Scarabæid, *Deltochilum gibbosum* Fab. The victim was still alive and had evidently put up a strong fight for existence, as both his fore legs and one of the middle ones were wanting. *D. gibbosum* appears to be a scarce species in Florida, having been taken by me but once before, when a half dozen were found in a putrid, extremely fetid mass of fungi in Skinner's Hammock near Dunedin.

Dicælus elongatus Dej. This species, frequent throughout Indiana, is seldom found in Florida. Two specimens were taken February 13 from beneath logs in low woods on the border of Lake Parker, northeast of Lakeland. Heretofore known from the State only by specimens taken by Schwarz at Enterprise, St. Augustine and Crescent City.

Lebia fuscata Dej. Two specimens were beaten from dead leaves of cabbage palmetto near Dunedin, one Jan. 29, the other March 19. It has been recorded from Jacksonville and Belleair, and is said to occur from Canada to Florida and Missouri.

Selenophorus fatuus Lec. Quite common beneath dead leaves near the crematory on Key West. With it were taken *Copelatus debilis* Sharp and *Casnonia pennsylvanica* L., the latter with the black spots of elytra very large and confluent.

Neoharmonia venusta fattigi, var. nov.

Differs from typical *venusta* in having the black markings of each elytron reduced to the two median spots, one round and submarginal, the other sub-sutural with a narrow prong directed forward. It is thus intermediate between the typical form and var. *dissimila*,³ the latter having these median spots wholly wanting. Examples of all three forms were sent to me by Prof. P. W. Fattig, of Gainesville, who took them at Pahokee on April 25.

Psyllobora nana Muls. A single specimen was taken March 2 while sweeping near the Old Fort on Key West. It is a Cuban and Jamaican species,

2. See Bull. Amer. Mus. Nat. Hist., XLI, 1919, 312.

3. Can. Ent., XLVI, 1914, 66.

and has been taken by Berger on the Dry Tortugas and the Florida Keys. *P. parvinota* Casey was taken in numbers both at Cape Sable and Key West.

Hyperaspis nigrosuturalis Blatch. Several additional specimens of this handsome Coccinellid, which was described⁴ from a unique taken at Lakeland, were collected near Dunedin in February by beating large bunches of Spanish moss in which they were hibernating.

Scymnillus eleutherae Casey. Three specimens of this minute Coccinellid were beaten from the foliage of the Saffron Plum, *Bumelia angustifolia* Nutt., along the edges of a hammock at Cape Sable. It was identified for me by Col. Casey, who described⁵ it from the Bahama Islands, this being its first record for the United States.

Scymnus dichrous Muls. A single specimen taken March 3 by beating at Key West. This species has not before been recorded from Florida, nor definitely from the United States. Mulsant's brief characterization and notes were as follows: "I have seen in the Chevrelat collection, under the name *Scymnus dichrous*, a specimen having the posterior fifth of the Elytra reddish white or reddish yellow, except that the suture throughout is widely bordered with black. Perhaps this specimen which seems to constitute a distinct species, may however be attached to *Scymnus ochroderus*." He gives no locality for *dichrous ochroderus* was from St. Bartholomew, West Indies.

Scymnus bivulnerus Horn. This species was taken both at Cape Sable and Key West. It was described in part from the latter place.

Mychocerus depressus Lec. Two specimens of this, the smallest of our Colydiidae, were taken Dec. 11 from beneath bark of dead water oak near Dunedin. Horn gives⁶ its range as "District of Columbia to South Carolina and very rare." It has not before been recorded from Florida, though mentioned in the Schwarz Mss. list from Tallahassee.

Apsectus hispidus Melsh. I can find no Florida record of this little bristly Dermestid. A single specimen was taken at Dunedin, March 19, from bottled, dead-leaf debris which was kept on account of its containing *Hormops abducens*⁷ Lec. The Dermestid is said by Leconte⁸ to occur in the middle and southern states on leaves.

Hister adonis, sp. nov.

Elongate-oval, moderately convex. Black, shining. Thorax with two marginal striae, the inner one almost entire, the outer but little shorter; disk smooth. Elytra with one sub-humeral stria reaching the apex and a very fine, oblique humeral. Dorsal striae five, entire, the fifth arching and joining the sutural, the striae well impressed, evidently but feebly punctate; epipleurae unistriate. Propygidium and pygidium both finely and rather sparsely punctate. Mesosternum truncate. Front tibiae with four rather coarse teeth, the apical one entire. Length 5.8 mm.

4. Can. Ent., L, 1918, 420.

5. Jour. N.Y. Ent. Soc., VII, 1899, 115.

6. Proc. Amer. Phil. Soc., XVII, 1878, 592.

7. See Journ. N.Y. Ent. Soc., XXVI, 1918, 158.

8. Proc. Acad. Nat. Sci. Phil., VIII, 1854, 113.

Dunedin, Florida, Dec. 13. One specimen taken from beneath a board near the margin of a pond. A member of Horn's Americanus Group, allied to *sedecimstriatus* but larger, more oblong, with two nearly entire thoracic marginal striæ, but one sub-humeral and with dorsal striæ less impressed, less distinctly punctate. Not in the Leconte or Horn collections and not known to Col. Casey.

Saprinus obsidianus Casey. Three specimens of this highly-polished Histerid have been taken at Dunedin, Dec. 21–March 21, one in a bucket of water, the others at carrion traps. It was described from Mobile, Ala., and has not before been recorded from Florida.

Carpophilus rickseckeri Fall. Two specimens were taken by sweeping along the margins of an orange grove near Dunedin, March 17. It was originally described⁹ from specimens taken in decaying cactus at San Diego, Cal., and Mr. Fall informs me that he has since seen specimens from Florida.¹⁰

Quadrifrons castanea Blatch. A second specimen of this very distinct Nitidulid was taken March 7. It was swept from low huckleberry bushes growing within 100 yards of the bay front one mile north of Dunedin. Both genus and species were founded (Can. Ent., 1916,*92) on a unique taken at Dunedin.

Ora texana Champ. Two specimens of this Dascyllid were taken at Dunedin Feb. 6 by beating a bunch of Spanish moss in which they were hibernating. It is the *Scirtes troberti* of Horn,¹¹ nec. Guer. and has been recorded before only from Louisiana and Texas, though known to Schwarz from Crescent City and Cape Malabar, Florida.

Melanotus parallelus, sp. nov.

Elongate and slender for the genus. Dark chestnut brown; antennæ, legs and last two ventral segments, pale reddish-brown; basal margin of elytra brighter reddish-brown. Antennæ slender, slightly longer than head and thorax, second joint subglobose, less than half the length of third, the latter nearly as long as, but much more slender than fourth. Clypeus flat, its disk coarsely and densely punctured, front margin very broadly rounded. Thorax one-half longer than wide, its sides straight and parallel from the tips of the long, acute hind angles almost to apex; disk rather finely and sparsely punctate, the punctures at middle separated by twice or more their own diameters, on sides distinctly closer, each puncture bearing a long, grayish-white prostrate hair. Elytra at base not wider than thorax, thence faintly but evidently and evenly tapering to apex; disc with rows of close-set rather coarse punctures; intervals slightly wider than the rows of punctures, each with two rows of very fine alternating punctures, each of which bears a long, prostrate whitish hair. Abdomen finely and sparsely punctate, the last segment with more numerous and coarser aciculate punctures. Length 8.7–9.5 mm.

9. Trans. Amer. Ent. Soc., XXXVI, 1910, 124.

10. This is probably the *Carpophilus humeralis* Murry, mentioned by Leng (Journ. N.Y. Entom. Soc., XXVI, 1918, 205) as having been introduced at Oneca, Fla. If so Fall's name is a synonym.

11. Trans. Amer. Ent. Soc., VIII, 102, pl. 1, fig. 15.

This is apparently a common winter *Melanotus* in Florida, having been taken by me at Ormond, Sanford and Dunedin, Feb. 27-Apr. 15. About Dunedin it occurs especially in early spring on the tall scurfy Ericad, *Xolisma ferruginea* Walt. which grows in clumps in very dry, sandy spots. It is especially notable for the long, parallel-sided thorax and peculiar punctuation of the last ventral.

***Melanotus perplexus*, sp. nov.**

Size medium, form moderately slender. Occiput, apical third of thorax, elytral suture and under surface dark chestnut-brown; basal portion of thorax and elytra except suture, reddish-brown; antennae and legs pale brown. Antennae stout, strongly serrate, reaching basal third of abdomen, joints one and two very short, subequal, subglobose, the two united less than half the length of fourth, the latter slightly longer than fifth. Clypeus densely and coarsely punctate, feebly concave, its front margin narrowly rounded. Thorax but slightly longer than wide, the centre of its disk notably convex, widest at middle, the sides evidently but not strongly curved; hind angles short, feebly divergent; disk finely, evenly and rather closely punctate; basal third strongly declivent, the concavity between base of thorax and that of elytra very deep and long. Elytra at base as wide as middle of thorax, thence very feebly narrowing to the rather bluntly rounded apex; striae distinctly impressed, their punctures round, close-set; intervals as wide as the striae, each with two irregular rows of minute punctures each bearing a very fine, short, white prostrate hair. Abdomen finely and rather closely punctate, the last two segments both densely punctate and pubescent. Length of body 8-8.2 mm.

Dunedin, Fla., June 10, July 5, two specimens taken at light. The colour and short, convex thorax with large, deep basal concavity are the distinguishing features of this species.

***Taphrocerus puncticollis* Schwarz.** I find that I have heretofore erroneously identified this species. It is our largest member of the genus, 5 to 6 mm. in length, bluish-black, the elytra without, or with very faint, pubescent patches, their surface more or less rugose and with striae punctures somewhat confused. A half dozen specimens were taken near Lakeland, Feb. 16, from between the leaf-sheaths and clumps of a saw-grass growing in clumps along the margin of a lake.

***Trichodes apivorus trifasciatus* Sturm.** A specimen of this large and handsome Clerid, taken at Gainesville May 23, is at hand. It was sent me by P. W. Fattig. The species is listed by Schwarz as "very rare" in Florida.

***Hydnocera verticalis* Say.** A variety of this well-known northern form, having the thorax with only narrow lateral and median stripes piceous; head and elytra wholly pale or the former with a faint fuscous blotch on occiput, occurs in Florida. A specimen was beaten from Spanish moss at Lakeland, and another is at hand from Lake City. The species has not before been noted definitely from Florida.

(To be continued.)

RECENT CANADIAN PUBLICATIONS.

(Continued from p. 24.)

FROM LE NATURALISTE CANADIEN:—

Odonates des environs de Saint Alexandre, Ironside, P. Q. By L. M. Stöhr. Vol. XLV, No. 6, Dec., 1918, pp. 81–85. Forty-one species are recorded, of which five are new to the Province of Quebec.

Un probleme entomologique. (Editorial.) Vol. XLV, No. 8, Février, 1919, pp. 116–117. Records the capture of the noctuid moth, *Stretchia plusiaformis* Hy. Edw. at Chicoutimi, a species otherwise known only from western North America.

La guerre aux coquerelles. By P. Fontanel, S. J. Vol. XLV, Dec., 1918, pp. 86–93; Jan., 1919, pp. 104–110; Fév., 1919, pp. 117–126. The habits and methods of destroying cockroaches are described, including formulæ for various insecticides.

Les Coleoptères du Canada. By J. I. Beaulne. Vol. XLV, Nov., 1918, pp. 76–79; Dec., 1918, pp. 93–95; Jan., 1919, pp. 104–110; Fév., 1919, pp. 117–126; Mar., 1919, pp. 140–143; Avr., 1919, pp. 157–160; Mai, 1919, pp. 173–175; Juin, 1919, pp. 186–191; Vol. XLVI, Août, 1919, pp. 45–48; Sept., 1919, pp. 69–72; Oct., 1919, pp. 94–96; Nov. 1919, pp. 117–120. These parts deal with the Hydrophilidæ, Silphidæ, Scydmaenidæ and Pselaphidæ.

La protection des plantes chez les Romains. By Georges Maheux. Vol. XLV, No. 10, April, 1919. An interesting paper, describing the methods employed by the Romans in combatting the ravages of insect enemies of cultivated plants, including cereals, vegetables and fruit trees.

La Lycie vulgaire. By J. C. Chapais. Vol. XLVI, No. 2, pp. 22–27. Notes on the habits, life history, and protective mimicry in the geometrid moth, *Lycia cognataria* Guénéé.

PROCEEDINGS OF THE ENTOMOLOGICAL SOCIETY OF BRITISH COLUMBIA.—Feb., 1918. No. 12. Systematic Series. Victoria, 1919.

This report of 39 pages contains the following papers and addresses:

Presidential Address.—By E. H. Blackmore. Pp. 5–9. Contains brief accounts of the work of the more active members of the Society.

Life-history of the Leaf-eating Crane-fly Cylindrotoma splendens, Doane (Tipulidæ, Diptera).—By Alfred E. Cameron. Pp. 9–12; 1 pl. An interesting account of the life-history of this peculiar crane-fly, whose larva, unlike those of most Tipulidæ, feeds upon the leaves of various plants, both terrestrial and aquatic, and is protected by its green colour and habit of dropping to the ground when disturbed.

Reared adults copulated in captivity soon after emergence, and eggs were deposited on the undersides of the leaves of potted plants of the false bugbane (*Travisetia grandis*). These were reared through to the adult stage. Descriptive notes are given of these stages, the peculiar structure and function of the ovipositor, and other features of the life-history. Detailed descriptions of the egg, larva and pupa of this insect appeared in the Annals of the Entomological Society of America, vol.

Notes on a Collection of Hemiptera.—By W. Downes. Pp. 13–16. This paper is an annotated list of Homopterous insects of the families Cicadidæ,

Cercopidæ, Membracidæ, Cicadellidæ and Fulgoridæ, taken chiefly by the author in the vicinity of Victoria and on the Saanich Peninsula to the north of the city, though a few were collected in the Okanagan District. Dates of capture are given for nearly all the species. The list numbers 61 species, and as little is known of the Hemiptera of British Columbia it is a welcome contribution to our knowledge of the subject.

A Revision of the British Columbia Species of the Geometrid Genus Hydriomena Hub.—By E. H. Blackmore. Pp. 18–26. This paper gives a brief review of recent work on this genus, leading up to its present clearly defined status; followed by notes on the characters of recently-described species from British Columbia, with particular reference to the form of the uncus. Figures of this structure are given for 16 species and varieties. Of the 68 species described from North America north of Mexico 20 have been taken in British Columbia, and 18 of these are reported from Vancouver Island. The paper concludes with a complete list of the British Columbian species.

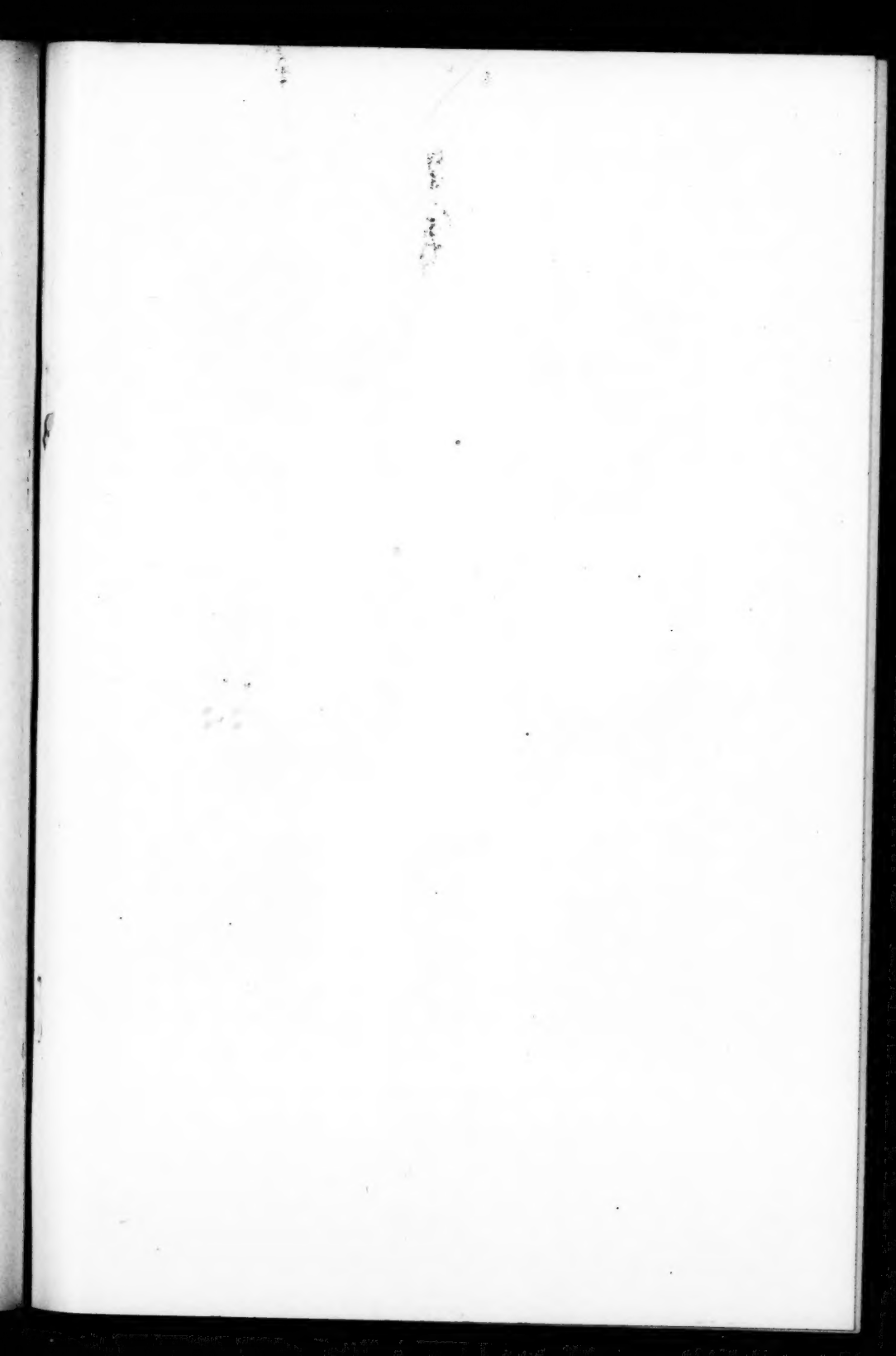
Notes on the Aeolothripidæ.—By R. C. Treherne. Pp. 27–33. A valuable synopsis of this family, which is the most generalized of the order Thysanoptera. Notes on the taxonomic position of the family are followed by keys to the sub-families, genera and species. There are 7 genera and 16 species discussed, 9 of the latter belonging to the genus Aeolothrips. Characters other than those of the wings are used, on account of the occurrence of brachypterous forms in some of the species. Antennal and wing characters of the species of this genus are illustrated. Unfortunately there are no references to distribution of the species.

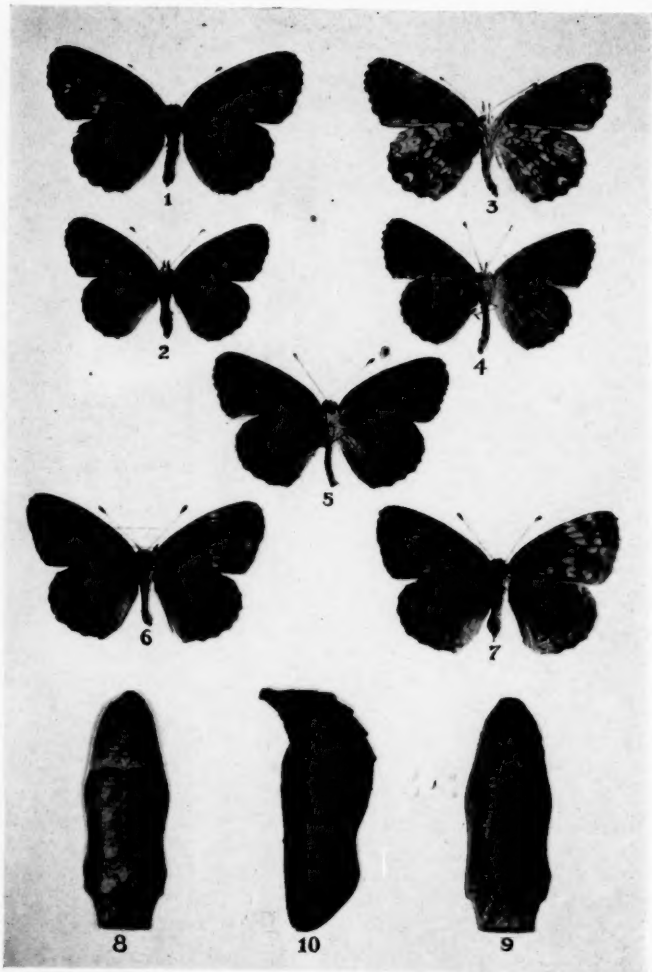
Three Years Collecting in the Lillooet District.—By A. W. A. Phair. Pp. 34–36. Describes a collecting trip to the summit of Mount McLean with the main object of capturing *Oeneis beani*, in which the author was successful. On this and subsequent trips a number of other interesting alpine Lepidoptera were taken. The mountain is described as a remarkably rich collecting ground and is easily reached from the town of Lillooet.

Natural Control Investigations in British Columbia.—By John D. Tothill. Pp. 37–39. Mr. Tothill, whose work on the natural control of the Forest Tent Caterpillar and the Fall Webworm in New Brunswick is well known, investigated these insects in the West in 1918. The Forest Tent Caterpillar was studied at Red Deer, Alberta, where a serious outbreak has been in force for three years, and in the Lower Fraser Valley, where conditions are unfavorable for the insect. In the former locality the parasites which usually serve to bring this insect under control, were not found, but in the Fraser Valley and on the lower end of Vancouver Island these parasites were present in numbers, preying upon the Western Tent (*M. phivalis*); and the author suggests that it would be well worth while to collect these for liberation at Red Deer.

An undescribed Tachinid related to *Compstilura* is the most important factor in the control of the Fall Webworm in British Columbia, and attempts will be made to introduce it into the region east of Winnipeg.

The mite *Hemisarcoptes malus*, the most important single factor in the control of the Oyster Scale in the Eastern Provinces, but which has been unknown in British Columbia, has been liberated at several points in this Province, and will be kept under observation for the next few years.





PHYSCIODES BATESI REAK., AND *P. THAROS* DRURY.
(See p. 59).

